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Opinion

Safety in Global Surgery: A Critical Element for Improving Health Outcomes Worldwide

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ABOUT TO STUDY

Surgical care is a cornerstone of healthcare, yet it remains inaccessible, unsafe, or of inadequate quality for millions of people, especially in Low- and Middle-Income Countries (LMICs). Every year, more than 300 million surgeries are performed globally, but surgical safety remains a major concern, contributing to preventable complications, disability, and death.

The burden of unsafe surgery

Globally, over 17 million people die each year from surgical conditions, many of which are preventable with the right interventions. In LMICs, the challenges of delivering safe surgical care are compounded by a lack of qualified surgeons, anesthetists, and nurses, limited access to essential surgical tools and facilities, and insufficient investment in surgical infrastructure. Unsafe surgical practices such as poorly sterilized instruments, inadequate anesthesia, lack of monitoring, and surgical errors can lead to devastating outcomes like infection, prolonged recovery, and even death.

Inadequate surgical safety protocols and poor training are often linked to the lack of a comprehensive surgical safety culture. For instance, the WHO's Safe Surgery Saves Lives initiative, which introduced the Surgical Safety Checklist, revealed that simple measures—such as ensuring that the entire surgical team is aware of the patient's identity, procedure, and risks—can drastically reduce complications and mortality rates in even the most resource-limited settings.

Key factors affecting surgical safety

Infrastructure and equipment: The quality of surgical infrastructure plays a critical role in ensuring safety. Many surgical facilities in LMICs lack basic equipment like sterilization machines, reliable electricity, and proper lighting, which increases the risk of infection and other complications. Even basic tools such as sutures, surgical gloves, and operating tables may be in short supply or in disrepair, further compromising safety.

Workforce capacity: The shortage of trained surgical professionals is a fundamental issue in global surgery. According to the Lancet Commission on Global Surgery, nearly five billion people around the world lack access to safe and timely surgical care. A severe shortage of surgeons, anesthetists, and nurses, especially in rural and remote areas, means that surgeries are often performed by undertrained staff or in unsafe conditions. Furthermore, many healthcare providers in LMICs may not be familiar with the latest evidence-based practices, or they may lack ongoing professional development opportunities to maintain competency in surgical safety.

Anesthesia safety: Anesthesia is a key component of surgery, but in many parts of the world, it remains a significant safety challenge. Anesthetists may have insufficient training, and there may be a lack of essential drugs or equipment for monitoring patients during surgery. Inadequate anesthesia protocols can lead to complications, including overdosing, inadequate sedation, and failure to detect early signs of complications, such as respiratory distress.

Infection control: Surgical infections are one of the leading causes of preventable surgical mortality worldwide. Poor hygiene, lack of sterile techniques, and inadequate post-operative care contribute to high infection rates in many surgical settings. In LMICs, where infection control measures such as hand hygiene, sterilization, and aseptic techniques may not be consistently practiced, the risk of infection after surgery is significantly increased.

Postoperative care: Effective postoperative care is essential for preventing complications like infection, blood clots, and poor wound healing. However, in resource-poor settings, there may be inadequate facilities for postoperative monitoring, pain management, and rehabilitation. Limited access to follow-up care often results in poor outcomes and preventable deaths.

Strategies for improving surgical safety

Improved surgical training and education: One of the most effective ways to improve surgical safety globally is by enhancing training and education for healthcare professionals. Programs

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such as the Safe Surgery Saves Lives initiative, which includes the WHO Surgical Safety Checklist, help to standardize and improve surgical practices. Training healthcare workers in basic and advanced surgical safety protocols—such as infection control, anesthesia management, and crisis intervention—can significantly reduce complications and mortality rates.

Building surgical capacity: Strengthening the surgical workforce is another critical area for improving safety. This includes investing in the training of local surgeons, anesthetists, and surgical nurses, as well as creating incentives for medical professionals to work in underserved regions. Capacity-building programs, such as those offered by the Global Surgery Initiative and The African Federation for Emergency Medicine, are key to addressing the surgical workforce shortage and improving care delivery.

Enhanced infrastructure and equipment: Governments and international organizations must prioritize investments in health infrastructure, ensuring that hospitals and surgical facilities are adequately equipped to handle surgeries safely. This includes providing basic surgical tools, sterilization equipment, reliable power sources, and monitoring equipment. Donors and global health organizations also have a critical role to play in supporting infrastructure development.

Public-private partnerships: Collaboration between governments, international agencies, NGOs, and the private sector can accelerate the development of safer surgical practices. By working together, these entities can ensure that best practices are disseminated and implemented widely, particularly in low-resource settings. Public-private partnerships can also bring much-needed investments in training, infrastructure, and technology.

Advocacy and policy change: Governments must prioritize surgical safety and make it an integral part of the national healthcare agenda. This involves setting up regulatory frameworks for safe surgery, creating policies for surgical workforce development, and ensuring that surgical care is accessible to all segments of the population, especially the underserved.

CONCLUSION

Ensuring safety in global surgery is a multifaceted challenge that requires coordinated action across various levels of the healthcare system. Addressing the structural, educational, and logistical barriers to safe surgery can improve health outcomes and reduce preventable mortality globally. By strengthening surgical infrastructure, building workforce capacity, and fostering a culture of safety, the world can ensure that surgery is a safe, accessible, and life-saving option for all.